

## ***Interactive comment on “Towards the Marine Arctic Component of the Pan-Eurasian Experiment” by Timo Vihma et al.***

**Anonymous Referee #1**

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The paper introduces the need to study in depth the marine part of the Eurasian arctic, supplementing the ongoing effort of PEEX, that addresses the terrestrial part. The document is a compilation of recent work (the past two decades) on the area, a list of relevant scientific subjects, including the corresponding observational component, and a final part of different proposition to push the research in the area forward, including novel ways of data production and societal impacts. In general the paper is interesting, but it is too long, the different chapters have a lot of superposition and the list of references is incomplete (cites in the text not in the list) or with errors in the references. The impression is that this is a report of the interested group that has been submitted as a paper to ACP. The authors should reduce the text indicating the main points, including clearly the rationale and the actions to perform. This is why I propose a return of the

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paper to the authors encouraging resubmission of a much shorter document. I think it is easier for the authors than to request Major Revisions providing a very long list of Major Comments. Below I summarize some points according to the ACP review guidelines.

1. Does the paper address relevant scientific questions within the scope of ACP? The subject is correct in introducing the need to perform the study in the marine Eurasian area, but it fails to focus on what is really needed. It does not provide a clear rationale on how to proceed neither what actions are essentially needed.
2. Does the paper present novel concepts, ideas, tools, or data? The paper tries to identify all novel methods of measuring to see if they would be of use for their effort. Nevertheless they do not proceed to analyze how these methods should be implemented in such harsh environment.
3. Are substantial conclusions reached? No, other than the experiment is necessary (and I agree with that).
4. Are the scientific methods and assumptions valid and clearly outlined? The methods are well described, the assumptions are very reasonable. However, the second half of the paper dealing with the societal impact is not clear. Sections 5 (Socio-economy) and 6 (The way forward) are long, too wordy and should be drastically reduced or be written in a more clear manner.
5. Are the results sufficient to support the interpretations and conclusions? There are not results in the paper, but there is a very good compilation of the work done, so the authors are in very good position to go for the experiment, but this is more for a research proposal than for a scientific paper.
6. Is the description of experiments and calculations sufficiently complete and precise to allow their reproduction by fellow scientists (traceability of results)? Not applicable, since it is a review/prospective paper.
7. Do the authors give proper credit to related work and clearly indicate their own

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new/original contribution? Yes, the compilation of previous work is excellent, although the reference list misses a lot of the references in the text and some references are inconsistent between the text and the list.

8. Does the title clearly reflect the contents of the paper? Yes.

9. Does the abstract provide a concise and complete summary? The abstract is good.

10. Is the overall presentation well structured and clear? The structure of the paper is good, but every section is too long and there are too many differences between sections, some are relatively concise and very clear others are more speculative and less precise. It is true that the paper addresses many different subjects and it is a big challenge to make a readable document with such a varied contents. However I am positive that a second try will manage to produce a good paper on MA-PEEX.

11. Is the language fluent and precise? In general English is good although there are some language mistakes, easy to correct. There are some changes of writing style between sections, probably due to different contributors, but the main problem is that not every section is written with the same approach, some are good others are weak.

12. Are mathematical formulae, symbols, abbreviations, and units correctly defined and used? Not applicable, since no mathematical expressions or formulae are used in the text or in the figures.

13. Should any parts of the paper (text, formulae, figures, tables) be clarified, reduced, combined, or eliminated? As indicated, the paper should be substantially reduced in size and also be written in a more internal coherent manner.

14. Are the number and quality of references appropriate? See point 7 on the errors in the references. The list is extensive but appropriate, it reflects well the scientific work made in the area in the recent times.

15. Is the amount and quality of supplementary material appropriate? No supplementary material that I can see. However if the authors produced a shorter version,

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perhaps they could derive some of the removed parts to supplementary material.

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